

[illegible]

jc525 U.S. PTO
09/521335



03/09/00

<130> DX0935K

<141> 2000-03-9

<160> 13

<170> PatentIn Ver. 2.0

<210> 1

<211> 1790

<212> DNA

<213> primate

<220>

<221> CDS

<222> (162) .. (806)

<220>

```
<221> mat_peptide
```

$\langle 222 \rangle \quad (213) \dots (806)$

<400> 1

ccgagcgaaa aaaacctgcg agtgggcctg gcggatggga ttattaaagc ttcgccggag 60

ccgcggctcg ccctcccact ccgccagcct ccgggagagg agccgcaccc ggccggccccg 120

gccccagccc catggacctc cgagcagggg actcgtgggg g atg tta gcg tgc ctg 176
Met Leu Ala Cys Leu

-15

tgc acg gtg ctc tgg cac ctc cct gca gtg cca gct ctc aat cgc aca 224
Cys Thr Val Leu Trp His Leu Pro Ala Val Pro Ala Leu Asn Arg Thr
-10 -5 -1 1

ggg gac cca ggg cct ggc ccc tcc atc cag aaa acc tat gac ctc acc 272
Gly Asp Pro Gly Pro Gly Pro Ser Ile Gln Lys Thr Tyr Asp Leu Thr
5 10 15 20

cgc tac ctg gag cac caa ctc cgc agc ttg gct ggg acc tat ctg aac 320
 Arg Tyr Leu Glu His Gln Leu Arg Ser Leu Ala Gly Thr Tyr Leu Asn
 25 30 35

tac ctg ggc ccc cct ttc aac gag cca gac ttc aac cct ccc cgc ctg 368
 Tyr Leu Gly Pro Pro Phe Asn Glu Pro Asp Phe Asn Pro Pro Arg Leu
 40 45 50

ggg gca gag act ctg ccc agg gcc act gtt gac ttg gag gtg tgg cga 416
Gly Ala Glu Thr Leu Pro Arg Ala Thr Val Asp Leu Glu Val Trp Arg
55 60 65

agc ctc aat gac aaa ctg cgg ctg acc cag aac tac gag gcc tac agc 464
 Ser Leu Asn Asp Lys Leu Arg Leu Thr Gln Asn Tyr Glu Ala Tyr Ser
 70 75 80

cac	ctt	ctg	tgt	tac	ttg	cgt	ggc	ctc	aac	cgt	cag	gct	gcc	act	gct	512
His	Leu	Leu	Cys	Tyr	Leu	Arg	Gly	Leu	Asn	Arg	Gln	Ala	Ala	Thr	Ala	
85					90					95					100	

gag ctg cgc cgc agc ctg gcc cac ttc tgc acc agc ctc cag ggc ctg 560
Glu Leu Arg Arg Ser Leu Ala His Phe Cys Thr Ser Leu Gln Gly Leu
105 110 115

ctg	ggc	agc	att	gcg	ggc	gtc	atg	gca	gct	ctg	ggc	tac	cca	ctg	ccc	608
Leu	Gly	Ser	Ile	Ala	Gly	Val	Met	Ala	Ala	Leu	Gly	Tyr	Pro	Leu	Pro	
			120					125					130			

cag ccg ctg cct ggg act gaa ccc act tgg act cct ggc cct gcc cac 656
Gln Pro Leu Pro Gly Thr Glu Pro Thr Trp Thr Pro Gly Pro Ala His
135 140 145

agt gac ttc ctc cag aag atg gac gac ttc tgg ctg ctg aag gag ctg 704
Ser Asp Phe Leu Gln Lys Met Asp Asp Phe Trp Leu Leu Lys Glu Leu
150 155 160

cag acc tgg ctg tgg cgc tcg gcc aag gac ttc aac cgg ctc aag aag 752
Gln Thr Trp Leu Trp Arg Ser Ala Lys Asp Phe Asn Arg Leu Lys Lys
165 170 175 180

aag atg cag cct cca gca gct gca gtc acc ctg cac ctg ggg gct cat 800
Lys Met Gln Pro Pro Ala Ala Ala Val Thr Leu His Leu Gly Ala His
185 190 195

ggc ttc tgacttctga ccttctcttc ttcgctcccc cttcaaacc c tgcctccact 856
Gly Phe

ttgtgagagc cagccctgta tgccaacacc tgttgagcca ggagacagaa gctgtgagcc 916

tctggccctt tcttggaccg gctgggcgtg tgatgcgatc agccctgtct cctccccacc 976

tcccaaaggt ctaccgagct ggggaggagg tacagtaggc cctgtcctgt cctgtttcta 1036

caggaagtca tgctcgaggg agtgtgaagt gggttcagggtt ggtgcagagg cgctcatggc 1096

ctcctgcttc ttgcctacca cttggccagt gccacccag cccctcaggt ggcacatctg 1156

gagggcaggg gttgaggggc caccaccaca catgcctttc tgggggtgaag ccctttggct 1216

gccccactct ccttggatgg gtggtgctcc cttatcccca aatcactcta tacatccaat 1276

tcaggaaaca aacatggtgg caattctaca caaaaagaga tgagattaac agtgcagggt 1336

tggggtctgc attggaggtg ccctataaac cagaagagaa aatactgaaa gcacagggggc 1396

agggacagac cagaccagac ccaggagtct ccaaagcaca gaggggcaaa caaaacccga 1456
 gctgagcatc aggaccttgc ctgcaattgt cttccagtat tacgggtgctt cttctctgcc 1516
 ccctttccca gggatatctgt gggttgccag gctggggagg gcaaccatag ccacaccaca 1576
 ggatttcttg aaagtttaca atgcagtagc attttggggt gtaggggtggc agtccccaa 1636
 ggccctgccc ccagcccca cccactcatg actctaagtg tgttgatta atatttattt 1696
 atttgagat gttatttatt agatgatatt tattgcagaa tttctattct tgtattaaca 1756
 aataaaatgc ttgcccaga acaaaaaaaaaaaaaa 1790

<210> 2
 <211> 215
 <212> PRT
 <213> primate

<400> 2
 Met Leu Ala Cys Leu Cys Thr Val Leu Trp His Leu Pro Ala Val Pro
 -15 -10 -5
 Ala Leu Asn Arg Thr Gly Asp Pro Gly Pro Gly Pro Ser Ile Gln Lys
 -1 1 5 10 15
 Thr Tyr Asp Leu Thr Arg Tyr Leu Glu His Gln Leu Arg Ser Leu Ala
 20 25 30
 Gly Thr Tyr Leu Asn Tyr Leu Gly Pro Pro Phe Asn Glu Pro Asp Phe
 35 40 45
 Asn Pro Pro Arg Leu Gly Ala Glu Thr Leu Pro Arg Ala Thr Val Asp
 50 55 60
 Leu Glu Val Trp Arg Ser Leu Asn Asp Lys Leu Arg Leu Thr Gln Asn
 65 70 75
 Tyr Glu Ala Tyr Ser His Leu Leu Cys Tyr Leu Arg Gly Leu Asn Arg
 80 85 90 95
 Gln Ala Ala Thr Ala Glu Leu Arg Arg Ser Leu Ala His Phe Cys Thr
 100 105 110
 Ser Leu Gln Gly Leu Leu Gly Ser Ile Ala Gly Val Met Ala Ala Leu
 115 120 125
 Gly Tyr Pro Leu Pro Gln Pro Leu Pro Gly Thr Glu Pro Thr Trp Thr
 130 135 140
 Pro Gly Pro Ala His Ser Asp Phe Leu Gln Lys Met Asp Asp Phe Trp
 145 150 155
 Leu Leu Lys Glu Leu Gln Thr Trp Leu Trp Arg Ser Ala Lys Asp Phe
 160 165 170 175

Asn Arg Leu Lys Lys Lys Met Gln Pro Pro Ala Ala Ala Val Thr Leu
180 185 190

His Leu Gly Ala His Gly Phe
195

<210> 3
<211> 648
<212> DNA
<213> primate

<220>
<221> CDS
<222> (1)..(645)

<220>
<221> mat_peptide
<222> (52)..(645)

<400> 3
atg tta gct tgc cta tgc acg gtg ctg tgg cac ctc cct gca gtg cca 48
Met Leu Ala Cys Leu Cys Thr Val Leu Trp His Leu Pro Ala Val Pro
-15 -10 -5
gct ctt aat cgc aca gga gat cca ggc cct ggc ccc tcc atc cag aaa 96
Ala Leu Asn Arg Thr Gly Asp Pro Gly Pro Gly Pro Ser Ile Gln Lys
-1 1 5 10 15
acc tat gac ctc acc cgc tac ctg gag cat caa ctc cgc agc tta gct 144
Thr Tyr Asp Leu Thr Arg Tyr Leu Glu His Gln Leu Arg Ser Leu Ala
20 25 30
ggg acc tac ctg aac tac ctg ggg ccc cct ttc aac gag cct gac ttc 192
Gly Thr Tyr Leu Asn Tyr Leu Gly Pro Pro Phe Asn Glu Pro Asp Phe
35 40 45
aat cct cct cga ctg ggg gca gaa act ctg ccc agg gcc acg gtc aac 240
Asn Pro Pro Arg Leu Gly Ala Glu Thr Leu Pro Arg Ala Thr Val Asn
50 55 60
ttg gaa gtg tgg cga agc ctc aat gac agg ctg cgg ctg acc cag aac 288
Leu Glu Val Trp Arg Ser Leu Asn Asp Arg Leu Arg Leu Thr Gln Asn
65 70 75
tat gag gcg tac agt cac ctc ctg tgt tac ttg cgt ggc ctc aac cgt 336
Tyr Glu Ala Tyr Ser His Leu Leu Cys Tyr Leu Arg Gly Leu Asn Arg
80 85 90 95
cag gct gcc aca gct gaa ctc cga cgt agc ctg gcc cac ttc tgt acc 384
Gln Ala Ala Thr Ala Glu Leu Arg Arg Ser Leu Ala His Phe Cys Thr
100 105 110
agc ctc cag ggc ctg ctg ggc agc att gca ggt gtc atg gcg acg ctt 432
Ser Leu Gln Gly Leu Leu Gly Ser Ile Ala Gly Val Met Ala Thr Leu
115 120 125

ggc tac cca ctg ccc cag cct ctg cca ggg act gag cca gcc tgg gcc	480
Gly Tyr Pro Leu Pro Gln Pro Leu Pro Gly Thr Glu Pro Ala Trp Ala	
130 135 140	
cct ggc cct gcc cac agt gac ttc ctc cag aag atg gat gac ttc tgg	528
Pro Gly Pro Ala His Ser Asp Phe Leu Gln Lys Met Asp Asp Phe Trp	
145 150 155	
ctg ctg aag gag ctg cag acc tgg cta tgg cgt tca gcc aag gac ttc	576
Leu Leu Lys Glu Leu Gln Thr Trp Leu Trp Arg Ser Ala Lys Asp Phe	
160 165 170 175	
aac cgg ctt aag aag aag atg cag cct cca gca gct tca gtc acc ctg	624
Asn Arg Leu Lys Lys Lys Met Gln Pro Pro Ala Ala Ser Val Thr Leu	
180 185 190	
cac ttg gag gcc cat ggt ttc tga	648
His Leu Glu Ala His Gly Phe	
195	

<210> 4
 <211> 215
 <212> PRT
 <213> primate

<400> 4
 Met Leu Ala Cys Leu Cys Thr Val Leu Trp His Leu Pro Ala Val Pro
 -15 -10 -5

Ala Leu Asn Arg Thr Gly Asp Pro Gly Pro Gly Pro Ser Ile Gln Lys
 -1 1 5 10 15

Thr Tyr Asp Leu Thr Arg Tyr Leu Glu His Gln Leu Arg Ser Leu Ala
 20 25 30

Gly Thr Tyr Leu Asn Tyr Leu Gly Pro Pro Phe Asn Glu Pro Asp Phe
 35 40 45

Asn Pro Pro Arg Leu Gly Ala Glu Thr Leu Pro Arg Ala Thr Val Asn
 50 55 60

Leu Glu Val Trp Arg Ser Leu Asn Asp Arg Leu Arg Leu Thr Gln Asn
 65 70 75

Tyr Glu Ala Tyr Ser His Leu Leu Cys Tyr Leu Arg Gly Leu Asn Arg
 80 85 90 95

Gln Ala Ala Thr Ala Glu Leu Arg Arg Ser Leu Ala His Phe Cys Thr
 100 105 110

Ser Leu Gln Gly Leu Leu Gly Ser Ile Ala Gly Val Met Ala Thr Leu
 115 120 125

Gly Tyr Pro Leu Pro Gln Pro Leu Pro Gly Thr Glu Pro Ala Trp Ala
 130 135 140

Pro Gly Pro Ala His Ser Asp Phe Leu Gln Lys Met Asp Asp Phe Trp
145 150 155

Leu Leu Lys Glu Leu Gln Thr Trp Leu Trp Arg Ser Ala Lys Asp Phe
160 165 170 175

Asn Arg Leu Lys Lys Lys Met Gln Pro Pro Ala Ala Ser Val Thr Leu
180 185 190

His Leu Glu Ala His Gly Phe
195

<210> 5

<211> 203

<212> PRT

<213> rodent

<400> 5

Met Lys Val Leu Ala Ala Gly Ile Val Pro Leu Leu Leu Leu Val Leu
1 5 10 15

His Trp Lys His Gly Ala Gly Ser Pro Leu Pro Ile Thr Pro Val Asn
20 25 30

Ala Thr Cys Ala Ile Arg His Pro Cys His Gly Asn Leu Met Asn Gln
35 40 45

Ile Lys Asn Gln Leu Ala Gln Leu Asn Gly Ser Ala Asn Ala Leu Phe
50 55 60

Ile Ser Tyr Tyr Thr Ala Gln Gly Glu Pro Phe Pro Asn Asn Val Glu
65 70 75 80

Lys Leu Cys Ala Pro Asn Met Thr Asp Phe Pro Ser Phe His Gly Asn
85 90 95

Gly Thr Glu Lys Thr Lys Leu Val Glu Leu Tyr Arg Met Val Ala Tyr
100 105 110

Leu Ser Ala Ser Leu Thr Asn Ile Thr Arg Asp Gln Lys Val Leu Asn
115 120 125

Pro Thr Ala Val Ser Leu Gln Val Lys Leu Asn Ala Thr Ile Asp Val
130 135 140

Met Arg Gly Leu Leu Ser Asn Val Leu Cys Arg Leu Cys Asn Lys Tyr
145 150 155 160

Arg Val Gly His Val Asp Val Pro Pro Val Pro Asp His Ser Asp Lys
165 170 175

Glu Ala Phe Gln Arg Lys Lys Leu Gly Cys Gln Leu Leu Gly Thr Tyr
180 185 190

Lys Gln Val Ile Ser Val Val Val Gln Ala Phe

195

200

<210> 6
 <211> 202
 <212> PRT
 <213> primate

<400> 6

Met Lys Val Leu Ala Ala Gly Val Val Pro Leu Leu Leu Val Leu His
 1 5 10 15

Trp Lys His Gly Ala Gly Ser Pro Leu Pro Ile Thr Pro Val Asn Ala
 20 25 30

Thr Cys Ala Ile Arg His Pro Cys His Asn Asn Leu Met Asn Gln Ile
 35 40 45

Arg Ser Gln Leu Ala Gln Leu Asn Gly Ser Ala Asn Ala Leu Phe Ile
 50 55 60

Leu Tyr Tyr Thr Ala Gln Gly Glu Pro Phe Pro Asn Asn Leu Asp Lys
 65 70 75 80

Leu Cys Gly Pro Asn Val Thr Asp Phe Pro Pro Phe His Ala Asn Gly
 85 90 95

Thr Glu Lys Ala Lys Leu Val Glu Leu Tyr Arg Ile Val Val Tyr Leu
 100 105 110

Gly Thr Ser Leu Gly Asn Ile Thr Arg Asp Gln Lys Ile Leu Asn Pro
 115 120 125

Ser Ala Leu Ser Leu His Ser Lys Leu Asn Ala Thr Ala Asp Ile Leu
 130 135 140

Arg Gly Leu Leu Ser Asn Val Leu Cys Arg Leu Cys Ser Lys Tyr His
 145 150 155 160

Val Gly His Val Asp Val Thr Tyr Gly Pro Asp Thr Ser Gly Lys Asp
 165 170 175

Val Phe Gln Lys Lys Lys Leu Gly Cys Gln Leu Leu Gly Lys Tyr Lys
 180 185 190

Gln Ile Ile Ala Val Leu Ala Gln Ala Phe
 195 200

<210> 7
 <211> 201
 <212> PRT
 <213> primate

<400> 7

Met Ser Arg Arg Glu Gly Ser Leu Glu Asp Pro Gln Thr Asp Ser Ser
 1 5 10 15

Val Ser Leu Leu Pro His Leu Glu Ala Lys Ile Arg Gln Thr His Ser
20 25 30

Leu Ala His Leu Leu Thr Lys Tyr Ala Glu Gln Leu Leu Gln Glu Tyr
35 40 45

Val Gln Leu Gln Gly Asp Pro Phe Gly Leu Pro Ser Phe Ser Pro Pro
50 55 60

Arg Leu Pro Val Ala Gly Leu Ser Ala Pro Ala Pro Ser His Ala Gly
65 70 75 80

Leu Pro Val His Glu Arg Leu Arg Leu Asp Ala Ala Ala Leu Ala Ala
85 90 95

Leu Pro Pro Leu Leu Asp Ala Val Cys Arg Arg Gln Ala Glu Leu Asn
100 105 110

Pro Arg Ala Pro Arg Leu Leu Arg Arg Leu Glu Asp Ala Ala Arg Gln
115 120 125

Ala Arg Ala Leu Gly Ala Ala Val Glu Ala Leu Leu Ala Ala Leu Gly
130 135 140

Ala Ala Asn Arg Gly Pro Arg Ala Glu Pro Pro Ala Ala Thr Ala Ser
145 150 155 160

Ala Ala Ser Ala Thr Gly Val Phe Pro Ala Lys Val Leu Gly Leu Arg
165 170 175

Val Cys Gly Leu Tyr Arg Glu Trp Leu Ser Arg Thr Glu Gly Asp Leu
180 185 190

Gly Gln Leu Leu Pro Gly Gly Ser Ala
195 200

<210> 8
<211> 203
<212> PRT
<213> rodent

<400> 8
Met Ser Gln Arg Glu Gly Ser Leu Glu Asp His Gln Thr Asp Ser Ser
1 5 10 15

Ile Ser Phe Leu Pro His Leu Glu Ala Lys Ile Arg Gln Thr His Asn
20 25 30

Leu Ala Arg Leu Leu Thr Lys Tyr Ala Glu Gln Leu Leu Glu Glu Tyr
35 40 45

Val Gln Gln Gln Gly Glu Pro Phe Gly Leu Pro Gly Phe Ser Pro Pro
50 55 60

Arg Leu Pro Leu Ala Gly Leu Ser Gly Pro Ala Pro Ser His Ala Gly

65		70		75		80
Leu Pro Val Ser Glu Arg Leu Arg Gln Asp Ala Ala Ala Leu Ser Val						
	85			90		95
Leu Pro Ala Leu Leu Asp Ala Val Arg Arg Arg Gln Ala Glu Leu Asn						
	100		105		110	
Pro Arg Ala Pro Arg Leu Leu Arg Ser Leu Glu Asp Ala Ala Arg Gln						
	115		120		125	
Val Arg Ala Leu Gly Ala Ala Val Glu Thr Val Leu Ala Ala Leu Gly						
	130		135		140	
Ala Ala Ala Arg Gly Pro Gly Pro Glu Pro Val Thr Val Ala Thr Leu						
	145		150		155	160
Phe Thr Ala Asn Ser Thr Ala Gly Ile Phe Ser Ala Lys Val Leu Gly						
	165		170		175	
Phe His Val Cys Gly Leu Tyr Gly Glu Trp Val Ser Arg Thr Glu Gly						
	180		185		190	
Asp Leu Gly Gln Leu Val Pro Gly Gly Val Ala						
	195		200			

<210> 9
 <211> 200
 <212> PRT
 <213> primate

<400> 9
 Met Ala Phe Thr Glu His Ser Pro Leu Thr Pro His Arg Arg Asp Leu
 1 5 10 15
 Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr
 20 25 30
 Ala Leu Thr Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile
 35 40 45
 Asn Leu Asp Ser Ala Asp Gly Met Pro Val Ala Ser Thr Asp Gln Trp
 50 55 60
 Ser Glu Leu Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr
 65 70 75 80
 Arg Thr Phe His Val Leu Leu Ala Arg Leu Leu Glu Asp Gln Gln Val
 85 90 95
 His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu
 100 105 110
 Leu Leu Gln Val Ala Ala Phe Ala Tyr Gln Ile Glu Glu Leu Met Ile
 115 120 125

Leu Leu Glu Tyr Lys Ile Pro Arg Asn Glu Ala Asp Gly Met Pro Ile
 130 135 140
 Asn Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys
 145 150 155 160
 Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu
 165 170 175
 Arg Phe Ile Ser Ser His Gln Thr Gly Ile Pro Ala Arg Gly Ser His
 180 185 190
 Tyr Ile Ala Asn Asn Lys Lys Met
 195 200

<210> 10
 <211> 198
 <212> PRT
 <213> rodent

<400> 10

Met Ala Phe Ala Glu Gln Ser Pro Leu Thr Leu His Arg Arg Asp Leu
 1 5 10 15
 Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr
 20 25 30
 Ala Leu Met Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile
 35 40 45
 Ser Leu Asp Ser Val Asp Gly Val Pro Val Ala Ser Thr Asp Arg Trp
 50 55 60
 Ser Glu Met Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr
 65 70 75 80
 Arg Thr Phe Gln Gly Met Leu Thr Lys Leu Leu Glu Asp Gln Arg Val
 85 90 95
 His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu
 100 105 110
 Thr Leu Gln Val Ser Ala Phe Ala Tyr Gln Leu Glu Glu Leu Met Ala
 115 120 125
 Leu Leu Glu Gln Lys Val Pro Glu Lys Glu Ala Asp Gly Met Pro Val
 130 135 140
 Thr Ile Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys
 145 150 155 160
 Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu
 165 170 175
 Arg Val Ile Ser Ser His His Met Gly Ile Ser Ala His Glu Ser His
 180 185 190

Tyr Gly Ala Lys Gln Met
195

<210> 11
<211> 208
<212> PRT
<213> primate

<400> 11

Met Thr His Leu Ser Leu Leu Gly Pro Leu Pro Cys Val Arg Thr Ser
1 5 10 15

Gln Gln Leu Pro Glu Thr Gln Gln Val Thr Thr Pro Gly Lys Lys Pro
20 25 30

Val Ser Val Gly Arg Arg Glu Val Arg Val Pro Gly Thr Ala Leu Val
35 40 45

Pro Ser Leu Leu Ser Val Ser Val Leu Leu Gln Leu Gln Tyr Gln Gly
50 55 60

Ser Pro Phe Ser Asp Pro Gly Phe Ser Ala Pro Glu Leu Gln Leu Ser
65 70 75 80

Ser Leu Pro Pro Ala Thr Ala Phe Phe Lys Thr Trp His Ala Leu Asp
85 90 95

Asp Gly Glu Arg Leu Ser Leu Ala Gln Arg Ala Ile Asp Pro His Leu
100 105 110

Gln Leu Val Glu Asp Asp Gln Ser Asp Leu Asn Pro Gly Ser Pro Ile
115 120 125

Leu Pro Ala Gln Leu Gly Ala Ala Arg Leu Arg Ala Gln Gly Pro Leu
130 135 140

Gly Asn Met Ala Ala Ile Met Thr Ala Leu Gly Leu Pro Ile Pro Pro
145 150 155 160

Glu Glu Asp Thr Pro Gly Leu Ala Ala Phe Gly Ala Ser Ala Phe Glu
165 170 175

Arg Lys Cys Arg Gly Tyr Val Val Thr Arg Glu Tyr Gly His Trp Thr
180 185 190

Asp Arg Ala Val Arg Asp Leu Ala Leu Leu Lys Ala Lys Tyr Ser Ala
195 200 205

<210> 12
<211> 410
<212> PRT

<213> primate

<400> 12

Met Pro Ala Gly Arg Arg Gly Pro Ala Ala Gln Ser Ala Arg Arg Pro
1 5 10 15

Pro Pro Leu Leu Pro Leu Leu Leu Leu Leu Cys Val Leu Gly Ala Pro
20 25 30

Arg Ala Gly Ser Gly Ala His Thr Ala Val Ile Ser Pro Gln Asp Pro
35 40 45

Thr Leu Leu Ile Gly Ser Ser Leu Leu Ala Thr Cys Ser Val His Gly
50 55 60

Asp Pro Pro Gly Ala Thr Ala Glu Gly Leu Tyr Trp Thr Leu Asn Gly
65 70 75 80

Arg Arg Leu Pro Pro Glu Leu Ser Arg Val Leu Asn Ala Ser Thr Leu
85 90 95

Ala Leu Ala Leu Ala Asn Leu Asn Gly Ser Arg Gln Arg Ser Gly Asp
100 105 110

Asn Leu Val Cys His Ala Arg Asp Gly Ser Ile Leu Ala Gly Ser Cys
115 120 125

Leu Tyr Val Gly Leu Pro Pro Glu Lys Pro Val Asn Ile Ser Cys Trp
130 135 140

Ser Lys Asn Met Lys Asp Leu Thr Cys Arg Trp Thr Pro Gly Ala His
145 150 155 160

Gly Glu Thr Phe Leu His Thr Asn Tyr Ser Leu Lys Tyr Lys Leu Arg
165 170 175

Trp Tyr Gly Gln Asp Asn Thr Cys Glu Glu Tyr His Thr Val Gly Pro
180 185 190

His Ser Cys His Ile Pro Lys Asp Leu Ala Leu Phe Thr Pro Tyr Glu
195 200 205

Ile Trp Val Glu Ala Thr Asn Arg Leu Gly Ser Ala Arg Ser Asp Val
210 215 220

Leu Thr Leu Asp Ile Leu Asp Val Val Thr Thr Asp Pro Pro Pro Asp
225 230 235 240

Val His Val Ser Arg Val Gly Gly Leu Glu Asp Gln Leu Ser Val Arg
245 250 255

Trp Val Ser Pro Pro Ala Leu Lys Asp Phe Leu Phe Gln Ala Lys Tyr
260 265 270

Gln Ile Arg Tyr Arg Val Glu Asp Ser Val Asp Trp Lys Val Val Asp
275 280 285

Asp Val Ser Asn Gln Thr Ser Cys Arg Leu Ala Gly Leu Lys Pro Gly
290 295 300

Thr Val Tyr Phe Val Gln Val Arg Cys Asn Pro Phe Gly Ile Tyr Gly
305 310 315 320

Ser Lys Lys Ala Gly Ile Trp Ser Glu Trp Ser His Pro Thr Ala Ala
325 330 335

Ser Thr Pro Arg Ser Glu Arg Pro Gly Pro Gly Gly Gly Ala Cys Glu
340 345 350

Pro Arg Gly Gly Glu Pro Ser Ser Gly Pro Val Arg Arg Glu Leu Lys
355 360 365

Gln Phe Leu Gly Trp Leu Lys Lys His Ala Tyr Cys Ser Asn Leu Ser
370 375 380

Phe Arg Leu Tyr Asp Gln Trp Arg Ala Trp Met Gln Lys Ser His Lys
385 390 395 400

Thr Arg Asn Gln Val Leu Pro Asp Lys Leu
405 410

<210> 13

<211> 407

<212> PRT

<213> rodent

<400> 13

Arg Pro Leu Ser Ser Leu Trp Ser Pro Leu Leu Leu Cys Val Leu Gly
1 5 10 15

Val Pro Arg Gly Gly Ser Gly Ala His Thr Ala Val Ile Ser Pro Gln
20 25 30

Asp Pro Thr Leu Leu Ile Gly Ser Ser Leu Gln Ala Thr Cys Ser Ile
35 40 45

His Gly Asp Thr Pro Gly Ala Thr Ala Glu Gly Leu Tyr Trp Thr Leu
50 55 60

Asn Gly Arg Arg Leu Pro Ser Leu Ser Arg Leu Leu Asn Thr Ser Thr
65 70 75 80

Leu Ala Leu Ala Leu Ala Asn Leu Asn Gly Ser Arg Gln Gln Ser Gly
85 90 95

Asp Asn Leu Val Cys His Ala Arg Asp Gly Ser Ile Leu Ala Gly Ser
100 105 110

Cys Leu Tyr Val Gly Leu Pro Pro Glu Lys Pro Phe Asn Ile Ser Cys
115 120 125

Trp Ser Arg Asn Met Lys Asp Leu Thr Cys Arg Trp Thr Pro Gly Ala
130 135 140

His Gly Glu Thr Phe Leu His Thr Asn Tyr Ser Leu Lys Tyr Lys Leu
145 150 155 160

Arg Trp Tyr Gly Gln Asp Asn Thr Cys Glu Glu Tyr His Thr Val Gly
165 170 175

Pro His Ser Cys His Ile Pro Lys Asp Leu Ala Leu Phe Thr Pro Tyr
180 185 190

Glu Ile Trp Val Glu Ala Thr Asn Arg Leu Gly Ser Ala Arg Ser Asp
195 200 205

Val Leu Thr Leu Asp Val Leu Asp Val Val Thr Thr Asp Pro Pro Pro
210 215 220

Asp Val His Val Ser Arg Val Gly Gly Leu Glu Asp Gln Leu Ser Val
225 230 235 240

Arg Trp Val Ser Pro Pro Ala Leu Lys Asp Phe Leu Phe Gln Ala Lys
245 250 255

Tyr Gln Ile Arg Tyr Arg Val Glu Asp Ser Val Asp Trp Lys Val Val
260 265 270

Asp Asp Val Ser Asn Gln Thr Ser Cys Arg Leu Ala Gly Leu Lys Pro
275 280 285

Gly Thr Val Tyr Phe Val Gln Val Arg Cys Asn Pro Phe Gly Ile Tyr
290 295 300

Gly Ser Lys Lys Ala Gly Ile Trp Ser Glu Trp Ser His Pro Thr Ala
305 310 315 320

Ala Ser Thr Pro Arg Ser Glu Arg Pro Gly Pro Gly Gly Gly Val Cys
325 330 335

Glu Pro Arg Gly Gly Glu Pro Ser Ser Gly Pro Val Arg Arg Glu Leu
340 345 350

Lys Gln Phe Leu Gly Trp Leu Lys Lys His Ala Tyr Cys Ser Asn Leu
355 360 365

Ser Phe Arg Leu Tyr Asp Gln Trp Arg Ala Trp Met Gln Lys Ser His
370 375 380

Lys Thr Arg Asn Gln Asp Glu Gly Ile Leu Pro Ser Gly Arg Arg Gly
385 390 395 400

Ala Ala Arg Gly Pro Ala Gly
405

SEQUENCE LISTING

5 SEQ ID NO: 1 is a primate IL-B60 natural nucleic acid sequence.
 SEQ ID NO: 2 is a primate IL-B60 natural amino acid sequence.
 SEQ ID NO: 3 is a rodent IL-B60 natural nucleic acid sequence.
 SEQ ID NO: 4 is a rodent IL-B60 natural amino acid sequence.
 SEQ ID NO: 5 is a rodent LIF.
 SEQ ID NO: 6 is a primate LIF.
 10 SEQ ID NO: 7 is a primate CT-1.
 SEQ ID NO: 8 is a rodent CT-1.
 SEQ ID NO: 9 is a primate CNTF.
 SEQ ID NO: 10 is a rodent CNTF.
 SEQ ID NO: 11 is a primate DNAX IL-40.
 15 SEQ ID NO: 12 is a primate CLF-1.
 SEQ ID NO: 13 is a rodent CLF-1.

20 <110> Oppmann, Birgit
 Timans, Jacqueline C.
 Kastelein, Robert A.
 Bazan, J. Fernando

25 <120> Mammalian Cytokines; Related Reagents and Methods
 <130> DX0935K
 <140> 09/xxx,xxx
 <141> 2000-03-09
 30 <160> 13
 <170> PatentIn Ver. 2.0

35 <210> 1
 <211> 1790
 <212> DNA
 <213> primate

40 <220>
 <221> CDS
 <222> (162)..(806)

45 <220>
 <221> mat_peptide
 <222> (213)..(806)

<400> 1
 50 ccgagcgaaa aaaacctgcg agtgggcctg gcggatggga ttattaaagc ttcgccggag 60
 ccgcggtctg ccctcccact ccgccagcct ccgggagagg agccgcaccc ggccggcccc 120
 gccccagccc catggacctc cgagcagggg actcgtgggg g atg tta gcg tgc ctg 176
 Met Leu Ala Cys Leu
 55 -15

tgc acg gtg ctc tgg cac ctc cct gca gtg cca gct ctc aat cgc aca 224
 Cys Thr Val Leu Trp His Leu Pro Ala Val Pro Ala Leu Asn Arg Thr
 -10 -5 -1 1

5 ggg gac cca ggg cct ggc ccc tcc atc cag aaa acc tat gac ctc acc 272
 Gly Asp Pro Gly Pro Gly Pro Ser Ile Gln Lys Thr Tyr Asp Leu Thr
 5 10 15 20

5 cgc tac ctg gag cac caa ctc cgc agc ttg gct ggg acc tat ctg aac 320
 Arg Tyr Leu Glu His Gln Leu Arg Ser Leu Ala Gly Thr Tyr Leu Asn
 25 30 35

10 tac ctg ggc ccc cct ttc aac gag cca gac ttc aac cct ccc cgc ctg 368
 Tyr Leu Gly Pro Pro Phe Asn Glu Pro Asp Phe Asn Pro Pro Arg Leu
 40 45 50

15 ggg gca gag act ctg ccc agg gcc act gtt gac ttg gag gtg tgg cga 416
 Gly Ala Glu Thr Leu Pro Arg Ala Thr Val Asp Leu Glu Val Trp Arg
 55 60 65

20 agc ctc aat gac aaa ctg cgg ctg acc cag aac tac gag gcc tac agc 464
 Ser Leu Asn Asp Lys Leu Arg Leu Thr Gln Asn Tyr Glu Ala Tyr Ser
 70 75 80

25 cac ctt ctg tgt tac ttg cgt ggc ctc aac cgt cag gct gcc act gct 512
 His Leu Leu Cys Tyr Leu Arg Gly Leu Asn Arg Gln Ala Ala Thr Ala
 85 90 95 100

30 gag ctg cgc cgc agc ctg gcc cac ttc tgc acc agc ctc cag ggc ctg 560
 Glu Leu Arg Arg Ser Leu Ala His Phe Cys Thr Ser Leu Gln Gly Leu
 105 110 115

30 ctg ggc agc att gcg ggc gtc atg gca gct ctg ggc tac cca ctg ccc 608
 Leu Gly Ser Ile Ala Gly Val Met Ala Ala Leu Gly Tyr Pro Leu Pro
 120 125 130

35 cag ccg ctg cct ggg act gaa ccc act tgg act cct ggc cct gcc cac 656
 Gln Pro Leu Pro Gly Thr Glu Pro Thr Trp Thr Pro Gly Pro Ala His
 135 140 145

40 agt gac ttc ctc cag aag atg gac gac ttc tgg ctg ctg aag gag ctg 704
 Ser Asp Phe Leu Gln Lys Met Asp Asp Phe Trp Leu Leu Lys Glu Leu
 150 155 160

45 cag acc tgg ctg tgg cgc tgc gcc aag gac ttc aac cgg ctc aag aag 752
 Gln Thr Trp Leu Trp Arg Ser Ala Lys Asp Phe Asn Arg Leu Lys Lys
 165 170 175 180

50 aag atg cag cct cca gca gct gca gtc acc ctg cac ctg ggg gct cat 800
 Lys Met Gln Pro Pro Ala Ala Ala Val Thr Leu His Leu Gly Ala His
 185 190 195

50 ggc ttc tgactttctga ccttctctc ttcgctcccc cttcaaacc tgctccact 856
 Gly Phe

55 ttgtgagagc cagccctgta tgccaacacc tgttgagcca ggagacagaa gctgtgagcc 916

55 tctggccctt tcttgaccg gctgggcgtg tgatgcgac agccctgtct cctccccacc 976

60 tcccaaaggt ctaccgagct ggggaggagg tacagtaggc cctgtcctgt cctgtttcta 1036

60 caggaagtca tgctcgaggg agtgtgaagt ggttcaggtt ggtgcagagg cgctcatggc 1096

ctcttgcttc ttgcctacca cttggccagt gcccaccag ccctcaggt ggcacatctg 1156
 gagggcaggg gttgaggggc caccaccaca catgcctttc tgggggtgaag ccctttggct 1216
 5 gccccactct cttgggatgg gtgttgctcc cttatcccca aatcactcta tacatccaat 1276
 tcaggaaaca aacatggtgg caattctaca caaaaagaga tgagattaac agtgcagggt 1336
 10 tgggggtctgc attggaggtg ccctataaac cagaagagaa aatactgaaa gcacaggggc 1396
 agggacagac cagaccagac ccaggagtct ccaaagcaca gaggggcaaa caaaacccga 1456
 gctgagcatc aggaccttgc ctggaattgt cttccagtat tacgggtgcct cttctctgcc 1516
 15 ccctttccca gggatatctgt gggttgccag gctggggagg gcaaccatag ccacaccaca 1576
 ggatttctctg aaagtttaca atgcagtagc attttggggg gtaggggtggc agctccccaa 1636
 20 ggccctgccc ccagcccca cccactcatg actctaagtg tgttgatta atatttattt 1696
 atttggagat gttatttatt agatgatatt tattgcagaa tttctattct tgtattaaca 1756
 aataaaatgc ttgcccaga acaaaaaaaaa aaaa 1790

25 <210> 2
 <211> 215
 <212> PRT
 <213> primate
 30 <400> 2
 Met Leu Ala Cys Leu Cys Thr Val Leu Trp His Leu Pro Ala Val Pro
 -15 -10 -5
 35 Ala Leu Asn Arg Thr Gly Asp Pro Gly Pro Gly Pro Ser Ile Gln Lys
 -1 1 5 10 15
 Thr Tyr Asp Leu Thr Arg Tyr Leu Glu His Gln Leu Arg Ser Leu Ala
 20 25 30
 40 Gly Thr Tyr Leu Asn Tyr Leu Gly Pro Pro Phe Asn Glu Pro Asp Phe
 35 40 45
 45 Asn Pro Pro Arg Leu Gly Ala Glu Thr Leu Pro Arg Ala Thr Val Asp
 50 55 60
 Leu Glu Val Trp Arg Ser Leu Asn Asp Lys Leu Arg Leu Thr Gln Asn
 65 70 75
 50 Tyr Glu Ala Tyr Ser His Leu Leu Cys Tyr Leu Arg Gly Leu Asn Arg
 80 85 90 95
 Gln Ala Ala Thr Ala Glu Leu Arg Arg Ser Leu Ala His Phe Cys Thr
 100 105 110
 55 Ser Leu Gln Gly Leu Leu Gly Ser Ile Ala Gly Val Met Ala Ala Leu
 115 120 125
 60 Gly Tyr Pro Leu Pro Gln Pro Leu Pro Gly Thr Glu Pro Thr Trp Thr
 130 135 140

Pro Gly Pro Ala His Ser Asp Phe Leu Gln Lys Met Asp Asp Phe Trp
 145 150 155
 5 Leu Leu Lys Glu Leu Gln Thr Trp Leu Trp Arg Ser Ala Lys Asp Phe
 160 165 170 175
 Asn Arg Leu Lys Lys Lys Met Gln Pro Pro Ala Ala Ala Val Thr Leu
 180 185 190
 10 His Leu Gly Ala His Gly Phe
 195
 15 <210> 3
 <211> 648
 <212> DNA
 <213> primate
 20 <220>
 <221> CDS
 <222> (1)..(645)
 25 <220>
 <221> mat_peptide
 <222> (52)..(645)
 <400> 3
 30 atg tta gct tgc cta tgc acg gtg ctg tgg cac ctc cct gca gtg cca 48
 Met Leu Ala Cys Leu Cys Thr Val Leu Trp His Leu Pro Ala Val Pro
 -15 -10 -5
 gct ctt aat cgc aca gga gat cca ggc cct ggc ccc tcc atc cag aaa 96
 Ala Leu Asn Arg Thr Gly Asp Pro Gly Pro Gly Pro Ser Ile Gln Lys
 35 -1 1 5 10 15
 acc tat gac ctc acc cgc tac ctg gag cat caa ctc cgc agc tta gct 144
 Thr Tyr Asp Leu Thr Arg Tyr Leu Glu His Gln Leu Arg Ser Leu Ala
 20 25 30
 40 ggg acc tac ctg aac tac ctg ggg ccc cct ttc aac gag cct gac ttc 192
 Gly Thr Tyr Leu Asn Tyr Leu Gly Pro Pro Phe Asn Glu Pro Asp Phe
 35 40 45
 45 aat cct cct cga ctg ggg gca gaa act ctg ccc agg gcc acg gtc aac 240
 Asn Pro Pro Arg Leu Gly Ala Glu Thr Leu Pro Arg Ala Thr Val Asn
 50 55 60
 ttg gaa gtg tgg cga agc ctc aat gac agg ctg cgg ctg acc cag aac 288
 Leu Glu Val Trp Arg Ser Leu Asn Asp Arg Leu Arg Leu Thr Gln Asn
 65 70 75
 tat gag gcg tac agt cac ctc ctg tgt tac ttg cgt ggc ctc aac cgt 336
 Tyr Glu Ala Tyr Ser His Leu Leu Cys Tyr Leu Arg Gly Leu Asn Arg
 80 85 90 95
 cag gct gcc aca gct gaa ctc cga cgt agc ctg gcc cac ttc tgt acc 384
 Gln Ala Ala Thr Ala Glu Leu Arg Arg Ser Leu Ala His Phe Cys Thr
 100 105 110
 60

agc ctc cag ggc ctg ctg ggc agc att gca ggt gtc atg gcg acg ctt 432
 Ser Leu Gln Gly Leu Leu Gly Ser Ile Ala Gly Val Met Ala Thr Leu
 115 120 125

5 ggc tac cca ctg ccc cag cct ctg cca ggg act gag cca gcc tgg gcc 480
 Gly Tyr Pro Leu Pro Gln Pro Leu Pro Gly Thr Glu Pro Ala Trp Ala
 130 135 140

10 cct ggc cct gcc cac agt gac ttc ctc cag aag atg gat gac ttc tgg 528
 Pro Gly Pro Ala His Ser Asp Phe Leu Gln Lys Met Asp Asp Phe Trp
 145 150 155

15 ctg ctg aag gag ctg cag acc tgg cta tgg cgt tca gcc aag gac ttc 576
 Leu Leu Lys Glu Leu Gln Thr Trp Leu Trp Arg Ser Ala Lys Asp Phe
 160 165 170 175

aac cgg ctt aag aag aag atg cag cct cca gca gct tca gtc acc ctg 624
 Asn Arg Leu Lys Lys Lys Met Gln Pro Pro Ala Ala Ser Val Thr Leu
 180 185 190

20 cac ttg gag gcc cat ggt ttc tga 648
 His Leu Glu Ala His Gly Phe
 195

25 <210> 4
 <211> 215
 <212> PRT
 <213> primate

30 <400> 4
 Met Leu Ala Cys Leu Cys Thr Val Leu Trp His Leu Pro Ala Val Pro
 -15 -10 -5

35 Ala Leu Asn Arg Thr Gly Asp Pro Gly Pro Gly Pro Ser Ile Gln Lys
 -1 1 5 10 15
 Thr Tyr Asp Leu Thr Arg Tyr Leu Glu His Gln Leu Arg Ser Leu Ala
 20 25 30

40 Gly Thr Tyr Leu Asn Tyr Leu Gly Pro Pro Phe Asn Glu Pro Asp Phe
 35 40 45

45 Asn Pro Pro Arg Leu Gly Ala Glu Thr Leu Pro Arg Ala Thr Val Asn
 50 55 60

Leu Glu Val Trp Arg Ser Leu Asn Asp Arg Leu Arg Leu Thr Gln Asn
 65 70 75

50 Tyr Glu Ala Tyr Ser His Leu Leu Cys Tyr Leu Arg Gly Leu Asn Arg
 80 85 90 95

Gln Ala Ala Thr Ala Glu Leu Arg Arg Ser Leu Ala His Phe Cys Thr
 100 105 110

55 Ser Leu Gln Gly Leu Leu Gly Ser Ile Ala Gly Val Met Ala Thr Leu
 115 120 125

60 Gly Tyr Pro Leu Pro Gln Pro Leu Pro Gly Thr Glu Pro Ala Trp Ala
 130 135 140

Pro Gly Pro Ala His Ser Asp Phe Leu Gln Lys Met Asp Asp Phe Trp
 145 150 155
 5 Leu Leu Lys Glu Leu Gln Thr Trp Leu Trp Arg Ser Ala Lys Asp Phe
 160 165 170 175
 Asn Arg Leu Lys Lys Lys Met Gln Pro Pro Ala Ala Ser Val Thr Leu
 180 185 190
 10 His Leu Glu Ala His Gly Phe
 195
 15 <210> 5
 <211> 203
 <212> PRT
 <213> rodent
 20 <400> 5
 Met Lys Val Leu Ala Ala Gly Ile Val Pro Leu Leu Leu Leu Val Leu
 1 5 10 15
 25 His Trp Lys His Gly Ala Gly Ser Pro Leu Pro Ile Thr Pro Val Asn
 20 25 30
 Ala Thr Cys Ala Ile Arg His Pro Cys His Gly Asn Leu Met Asn Gln
 35 40 45
 30 Ile Lys Asn Gln Leu Ala Gln Leu Asn Gly Ser Ala Asn Ala Leu Phe
 50 55 60
 35 Ile Ser Tyr Tyr Thr Ala Gln Gly Glu Pro Phe Pro Asn Asn Val Glu
 65 70 75 80
 Lys Leu Cys Ala Pro Asn Met Thr Asp Phe Pro Ser Phe His Gly Asn
 85 90 95
 40 Gly Thr Glu Lys Thr Lys Leu Val Glu Leu Tyr Arg Met Val Ala Tyr
 100 105 110
 Leu Ser Ala Ser Leu Thr Asn Ile Thr Arg Asp Gln Lys Val Leu Asn
 115 120 125
 45 Pro Thr Ala Val Ser Leu Gln Val Lys Leu Asn Ala Thr Ile Asp Val
 130 135 140
 50 Met Arg Gly Leu Leu Ser Asn Val Leu Cys Arg Leu Cys Asn Lys Tyr
 145 150 155 160
 Arg Val Gly His Val Asp Val Pro Pro Val Pro Asp His Ser Asp Lys
 165 170 175
 55 Glu Ala Phe Gln Arg Lys Lys Leu Gly Cys Gln Leu Leu Gly Thr Tyr
 180 185 190
 Lys Gln Val Ile Ser Val Val Val Gln Ala Phe
 195 200

<210> 6
 <211> 202
 <212> PRT
 <213> primate

5

<400> 6
 Met Lys Val Leu Ala Ala Gly Val Val Pro Leu Leu Leu Val Leu His
 1 5 10 15

10 Trp Lys His Gly Ala Gly Ser Pro Leu Pro Ile Thr Pro Val Asn Ala
 20 25 30

Thr Cys Ala Ile Arg His Pro Cys His Asn Asn Leu Met Asn Gln Ile
 35 40 45

15

Arg Ser Gln Leu Ala Gln Leu Asn Gly Ser Ala Asn Ala Leu Phe Ile
 50 55 60

20

Leu Tyr Tyr Thr Ala Gln Gly Glu Pro Phe Pro Asn Asn Leu Asp Lys
 65 70 75 80

Leu Cys Gly Pro Asn Val Thr Asp Phe Pro Pro Phe His Ala Asn Gly
 85 90 95

25

Thr Glu Lys Ala Lys Leu Val Glu Leu Tyr Arg Ile Val Val Tyr Leu
 100 105 110

Gly Thr Ser Leu Gly Asn Ile Thr Arg Asp Gln Lys Ile Leu Asn Pro
 115 120 125

30

Ser Ala Leu Ser Leu His Ser Lys Leu Asn Ala Thr Ala Asp Ile Leu
 130 135 140

35

Arg Gly Leu Leu Ser Asn Val Leu Cys Arg Leu Cys Ser Lys Tyr His
 145 150 155 160

Val Gly His Val Asp Val Thr Tyr Gly Pro Asp Thr Ser Gly Lys Asp
 165 170 175

40

Val Phe Gln Lys Lys Lys Leu Gly Cys Gln Leu Leu Gly Lys Tyr Lys
 180 185 190

Gln Ile Ile Ala Val Leu Ala Gln Ala Phe
 195 200

45

<210> 7
 <211> 201
 <212> PRT
 <213> primate

50

<400> 7
 Met Ser Arg Arg Glu Gly Ser Leu Glu Asp Pro Gln Thr Asp Ser Ser
 1 5 10 15

55

Val Ser Leu Leu Pro His Leu Glu Ala Lys Ile Arg Gln Thr His Ser
 20 25 30

60

Leu Ala His Leu Leu Thr Lys Tyr Ala Glu Gln Leu Leu Gln Glu Tyr
 35 40 45

Val Gln Leu Gln Gly Asp Pro Phe Gly Leu Pro Ser Phe Ser Pro Pro
 50 55 60

5 Arg Leu Pro Val Ala Gly Leu Ser Ala Pro Ala Pro Ser His Ala Gly
 65 70 75 80

Leu Pro Val His Glu Arg Leu Arg Leu Asp Ala Ala Ala Leu Ala Ala
 85 90 95

10 Leu Pro Pro Leu Leu Asp Ala Val Cys Arg Arg Gln Ala Glu Leu Asn
 100 105 110

15 Pro Arg Ala Pro Arg Leu Leu Arg Arg Leu Glu Asp Ala Ala Arg Gln
 115 120 125

Ala Arg Ala Leu Gly Ala Ala Val Glu Ala Leu Leu Ala Ala Leu Gly
 130 135 140

20 Ala Ala Asn Arg Gly Pro Arg Ala Glu Pro Pro Ala Ala Thr Ala Ser
 145 150 155 160

Ala Ala Ser Ala Thr Gly Val Phe Pro Ala Lys Val Leu Gly Leu Arg
 165 170 175

25 Val Cys Gly Leu Tyr Arg Glu Trp Leu Ser Arg Thr Glu Gly Asp Leu
 180 185 190

30 Gly Gln Leu Leu Pro Gly Gly Ser Ala
 195 200

35 <210> 8
 <211> 203
 <212> PRT
 <213> rodent

<400> 8
 40 Met Ser Gln Arg Glu Gly Ser Leu Glu Asp His Gln Thr Asp Ser Ser
 1 5 10 15

Ile Ser Phe Leu Pro His Leu Glu Ala Lys Ile Arg Gln Thr His Asn
 20 25 30

45 Leu Ala Arg Leu Leu Thr Lys Tyr Ala Glu Gln Leu Leu Glu Glu Tyr
 35 40 45

Val Gln Gln Gln Gly Glu Pro Phe Gly Leu Pro Gly Phe Ser Pro Pro
 50 55 60

50 Arg Leu Pro Leu Ala Gly Leu Ser Gly Pro Ala Pro Ser His Ala Gly
 65 70 75 80

55 Leu Pro Val Ser Glu Arg Leu Arg Gln Asp Ala Ala Ala Leu Ser Val
 85 90 95

Leu Pro Ala Leu Leu Asp Ala Val Arg Arg Arg Gln Ala Glu Leu Asn
 100 105 110

Pro Arg Ala Pro Arg Leu Leu Arg Ser Leu Glu Asp Ala Ala Arg Gln
 115 120 125
 5 Val Arg Ala Leu Gly Ala Ala Val Glu Thr Val Leu Ala Ala Leu Gly
 130 135 140
 Ala Ala Ala Arg Gly Pro Gly Pro Glu Pro Val Thr Val Ala Thr Leu
 145 150 155 160
 10 Phe Thr Ala Asn Ser Thr Ala Gly Ile Phe Ser Ala Lys Val Leu Gly
 165 170 175
 Phe His Val Cys Gly Leu Tyr Gly Glu Trp Val Ser Arg Thr Glu Gly
 180 185 190
 15 Asp Leu Gly Gln Leu Val Pro Gly Gly Val Ala
 195 200
 20 <210> 9
 <211> 200
 <212> PRT
 <213> primate
 25 <400> 9
 Met Ala Phe Thr Glu His Ser Pro Leu Thr Pro His Arg Arg Asp Leu
 1 5 10 15
 30 Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr
 20 25 30
 Ala Leu Thr Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile
 35 40 45
 35 Asn Leu Asp Ser Ala Asp Gly Met Pro Val Ala Ser Thr Asp Gln Trp
 50 55 60
 Ser Glu Leu Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr
 65 70 75 80
 40 Arg Thr Phe His Val Leu Leu Ala Arg Leu Leu Glu Asp Gln Gln Val
 85 90 95
 45 His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu
 100 105 110
 Leu Leu Gln Val Ala Ala Phe Ala Tyr Gln Ile Glu Glu Leu Met Ile
 115 120 125
 50 Leu Leu Glu Tyr Lys Ile Pro Arg Asn Glu Ala Asp Gly Met Pro Ile
 130 135 140
 Asn Val Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys
 145 150 155 160
 55 Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu
 165 170 175
 60 Arg Phe Ile Ser Ser His Gln Thr Gly Ile Pro Ala Arg Gly Ser His
 180 185 190

Tyr Ile Ala Asn Asn Lys Lys Met
195 200

5

<210> 10
<211> 198
<212> PRT
<213> rodent

10

<400> 10
Met Ala Phe Ala Glu Gln Ser Pro Leu Thr Leu His Arg Arg Asp Leu
1 5 10 15

15

Cys Ser Arg Ser Ile Trp Leu Ala Arg Lys Ile Arg Ser Asp Leu Thr
20 25 30

Ala Leu Met Glu Ser Tyr Val Lys His Gln Gly Leu Asn Lys Asn Ile
35 40 45

20

Ser Leu Asp Ser Val Asp Gly Val Pro Val Ala Ser Thr Asp Arg Trp
50 55 60

25

Ser Glu Met Thr Glu Ala Glu Arg Leu Gln Glu Asn Leu Gln Ala Tyr
65 70 75 80

Arg Thr Phe Gln Gly Met Leu Thr Lys Leu Leu Glu Asp Gln Arg Val
85 90 95

30

His Phe Thr Pro Thr Glu Gly Asp Phe His Gln Ala Ile His Thr Leu
100 105 110

Thr Leu Gln Val Ser Ala Phe Ala Tyr Gln Leu Glu Glu Leu Met Ala
115 120 125

35

Leu Leu Glu Gln Lys Val Pro Glu Lys Glu Ala Asp Gly Met Pro Val
130 135 140

40

Thr Ile Gly Asp Gly Gly Leu Phe Glu Lys Lys Leu Trp Gly Leu Lys
145 150 155 160

Val Leu Gln Glu Leu Ser Gln Trp Thr Val Arg Ser Ile His Asp Leu
165 170 175

45

Arg Val Ile Ser Ser His His Met Gly Ile Ser Ala His Glu Ser His
180 185 190

Tyr Gly Ala Lys Gln Met
195

50

<210> 11
<211> 208
<212> PRT
<213> primate

55

<400> 11
Met Thr His Leu Ser Leu Leu Gly Pro Leu Pro Cys Val Arg Thr Ser
1 5 10 15

60

Gln Gln Leu Pro Glu Thr Gln Gln Val Thr Thr Pro Gly Lys Lys Pro
 20 25 30
 Val Ser Val Gly Arg Arg Glu Val Arg Val Pro Gly Thr Ala Leu Val
 5 35 40 45
 Pro Ser Leu Leu Ser Val Ser Val Leu Leu Gln Leu Gln Tyr Gln Gly
 50 55 60
 10 Ser Pro Phe Ser Asp Pro Gly Phe Ser Ala Pro Glu Leu Gln Leu Ser
 65 70 75 80
 Ser Leu Pro Pro Ala Thr Ala Phe Phe Lys Thr Trp His Ala Leu Asp
 85 90 95
 15 Asp Gly Glu Arg Leu Ser Leu Ala Gln Arg Ala Ile Asp Pro His Leu
 100 105 110
 Gln Leu Val Glu Asp Asp Gln Ser Asp Leu Asn Pro Gly Ser Pro Ile
 20 115 120 125
 Leu Pro Ala Gln Leu Gly Ala Ala Arg Leu Arg Ala Gln Gly Pro Leu
 130 135 140
 25 Gly Asn Met Ala Ala Ile Met Thr Ala Leu Gly Leu Pro Ile Pro Pro
 145 150 155 160
 Glu Glu Asp Thr Pro Gly Leu Ala Ala Phe Gly Ala Ser Ala Phe Glu
 165 170 175
 30 Arg Lys Cys Arg Gly Tyr Val Val Thr Arg Glu Tyr Gly His Trp Thr
 180 185 190
 Asp Arg Ala Val Arg Asp Leu Ala Leu Leu Lys Ala Lys Tyr Ser Ala
 35 195 200 205
 40
 <210> 12
 <211> 410
 <212> PRT
 <213> primate
 45
 <400> 12
 Met Pro Ala Gly Arg Arg Gly Pro Ala Ala Gln Ser Ala Arg Arg Pro
 1 5 10 15
 50 Pro Pro Leu Leu Pro Leu Leu Leu Leu Leu Cys Val Leu Gly Ala Pro
 20 25 30
 Arg Ala Gly Ser Gly Ala His Thr Ala Val Ile Ser Pro Gln Asp Pro
 35 40 45
 55 Thr Leu Leu Ile Gly Ser Ser Leu Leu Ala Thr Cys Ser Val His Gly
 50 55 60
 Asp Pro Pro Gly Ala Thr Ala Glu Gly Leu Tyr Trp Thr Leu Asn Gly
 60 65 70 75 80

Arg Arg Leu Pro Pro Glu Leu Ser Arg Val Leu Asn Ala Ser Thr Leu
 85 90 95
 5 Ala Leu Ala Leu Ala Asn Leu Asn Gly Ser Arg Gln Arg Ser Gly Asp
 100 105 110
 Asn Leu Val Cys His Ala Arg Asp Gly Ser Ile Leu Ala Gly Ser Cys
 115 120 125
 10 Leu Tyr Val Gly Leu Pro Pro Glu Lys Pro Val Asn Ile Ser Cys Trp
 130 135 140
 Ser Lys Asn Met Lys Asp Leu Thr Cys Arg Trp Thr Pro Gly Ala His
 15 145 150 155 160
 Gly Glu Thr Phe Leu His Thr Asn Tyr Ser Leu Lys Tyr Lys Leu Arg
 165 170 175
 20 Trp Tyr Gly Gln Asp Asn Thr Cys Glu Glu Tyr His Thr Val Gly Pro
 180 185 190
 His Ser Cys His Ile Pro Lys Asp Leu Ala Leu Phe Thr Pro Tyr Glu
 195 200 205
 25 Ile Trp Val Glu Ala Thr Asn Arg Leu Gly Ser Ala Arg Ser Asp Val
 210 215 220
 Leu Thr Leu Asp Ile Leu Asp Val Val Thr Thr Asp Pro Pro Pro Asp
 30 225 230 235 240
 Val His Val Ser Arg Val Gly Gly Leu Glu Asp Gln Leu Ser Val Arg
 245 250 255
 35 Trp Val Ser Pro Pro Ala Leu Lys Asp Phe Leu Phe Gln Ala Lys Tyr
 260 265 270
 Gln Ile Arg Tyr Arg Val Glu Asp Ser Val Asp Trp Lys Val Val Asp
 275 280 285
 40 Asp Val Ser Asn Gln Thr Ser Cys Arg Leu Ala Gly Leu Lys Pro Gly
 290 295 300
 Thr Val Tyr Phe Val Gln Val Arg Cys Asn Pro Phe Gly Ile Tyr Gly
 45 305 310 315 320
 Ser Lys Lys Ala Gly Ile Trp Ser Glu Trp Ser His Pro Thr Ala Ala
 325 330 335
 50 Ser Thr Pro Arg Ser Glu Arg Pro Gly Pro Gly Gly Gly Ala Cys Glu
 340 345 350
 Pro Arg Gly Gly Glu Pro Ser Ser Gly Pro Val Arg Arg Glu Leu Lys
 355 360 365
 55 Gln Phe Leu Gly Trp Leu Lys Lys His Ala Tyr Cys Ser Asn Leu Ser
 370 375 380
 Phe Arg Leu Tyr Asp Gln Trp Arg Ala Trp Met Gln Lys Ser His Lys
 60 385 390 395 400

Thr Arg Asn Gln Val Leu Pro Asp Lys Leu
405 410

5

```
<210> 13
<211> 407
<212> PRT
<213> rodent
```

10

<400> 13
Arg Pro Leu Ser Ser Leu Trp Ser Pro Leu Leu Leu Cys Val Leu Gly
1 5 10 15

15

Val Pro Arg Gly Gly Ser Gly Ala His Thr Ala Val Ile Ser Pro Gln
20 25 30

Asp Pro Thr Leu Leu Ile Gly Ser Ser Leu Gln Ala Thr Cys Ser Ile
35 40 45

20

His Gly Asp Thr Pro Gly Ala Thr Ala Glu Gly Leu Tyr Trp Thr Leu
50 55 60

25

Asn Gly Arg Arg Leu Pro Ser Leu Ser Arg Leu Leu Asn Thr Ser Thr
65 70 75 80

Leu Ala Leu Ala Leu Ala Asn Leu Asn Gly Ser Arg Gln Gln Ser Gly
85 90 95

30

Asp Asn Leu Val Cys His Ala Arg Asp Gly Ser Ile Leu Ala Gly Ser
100 105 110

Cys Leu Tyr Val Gly Leu Pro Pro Glu Lys Pro Phe Asn Ile Ser Cys
115 120 125

35

Trp Ser Arg Asn Met Lys Asp Leu Thr Cys Arg Trp Thr Pro Gly Ala
130 135 140

40

His Gly Glu Thr Phe Leu His Thr Asn Tyr Ser Leu Lys Tyr Lys Leu
145 150 155 160

Arg Trp Tyr Gly Gln Asp Asn Thr Cys Glu Glu Tyr His Thr Val Gly
165 170 175

45

Pro His Ser Cys His Ile Pro Lys Asp Leu Ala Leu Phe Thr Pro Tyr
180 185 190

Glu Ile Trp Val Glu Ala Thr Asn Arg Leu Gly Ser Ala Arg Ser Asp
195 200 205

50

Val	Leu	Thr	Leu	Asp	Val	Leu	Asp	Val	Val	Thr	Thr	Asp	Pro	Pro	Pro
210						215					220				

55

Asp Val His Val Ser Arg Val Gly Gly Leu Glu Asp Gln Leu Ser Val
225 230 235 240

Arg Trp Val Ser Pro Pro Ala Leu Lys Asp Phe Leu Phe Gln Ala Lys
245 250 255

Tyr Gln Ile Arg Tyr Arg Val Glu Asp Ser Val Asp Trp Lys Val Val
260 265 270

5 Asp Asp Val Ser Asn Gln Thr Ser Cys Arg Leu Ala Gly Leu Lys Pro
275 280 285

Gly Thr Val Tyr Phe Val Gln Val Arg Cys Asn Pro Phe Gly Ile Tyr
290 295 300

10 Gly Ser Lys Lys Ala Gly Ile Trp Ser Glu Trp Ser His Pro Thr Ala
305 310 315 320

Ala Ser Thr Pro Arg Ser Glu Arg Pro Gly Pro Gly Gly Gly Val Cys
325 330 335

15 Glu Pro Arg Gly Gly Glu Pro Ser Ser Gly Pro Val Arg Arg Glu Leu
340 345 350

20 Lys Gln Phe Leu Gly Trp Leu Lys Lys His Ala Tyr Cys Ser Asn Leu
355 360 365

Ser Phe Arg Leu Tyr Asp Gln Trp Arg Ala Trp Met Gln Lys Ser His
370 375 380

25 Lys Thr Arg Asn Gln Asp Glu Gly Ile Leu Pro Ser Gly Arg Arg Gly
385 390 395 400

Ala Ala Arg Gly Pro Ala Gly
405

30